

### **Abstract**

The car industry increasingly uses plastic optical fibers whose protective sheathing (4) is made of a polyamide. As unmodified PA poorly adheres to the fluoropolymers often used as the material for the fiber cladding (3), the plastic optical fiber (2, 3) moves in relation to the protective sheathing (4) when the temperature varies. To suppress this effect referred to as “pistoning”, the connectors and holders of the optical fibers must apply very large clamping forces to the protective sheathing (4) and the plastic optical fiber (2, 3) arranged therein, resulting in an increased signal attenuation. The use of a modified PA can clearly improve the adherence of the protective sheathing (4) to the cladding (3) of a plastic optical fiber which is made of a fluoropolymer. As the protective sheathing material, particularly a modified PA 12 whose maximum concentration of the carboxyl terminal groups of the polyamide is 15  $\mu\text{eq/g}$  and whose concentration of the amino terminal groups is in the range of 50  $\mu\text{eq/g}$  to 300  $\mu\text{eq/g}$  may be used.